Delta Stewardship Council

Presentation to the Delta Independent Science Board
Delta Plan Performance Measures (Revised)

February 11, 2016

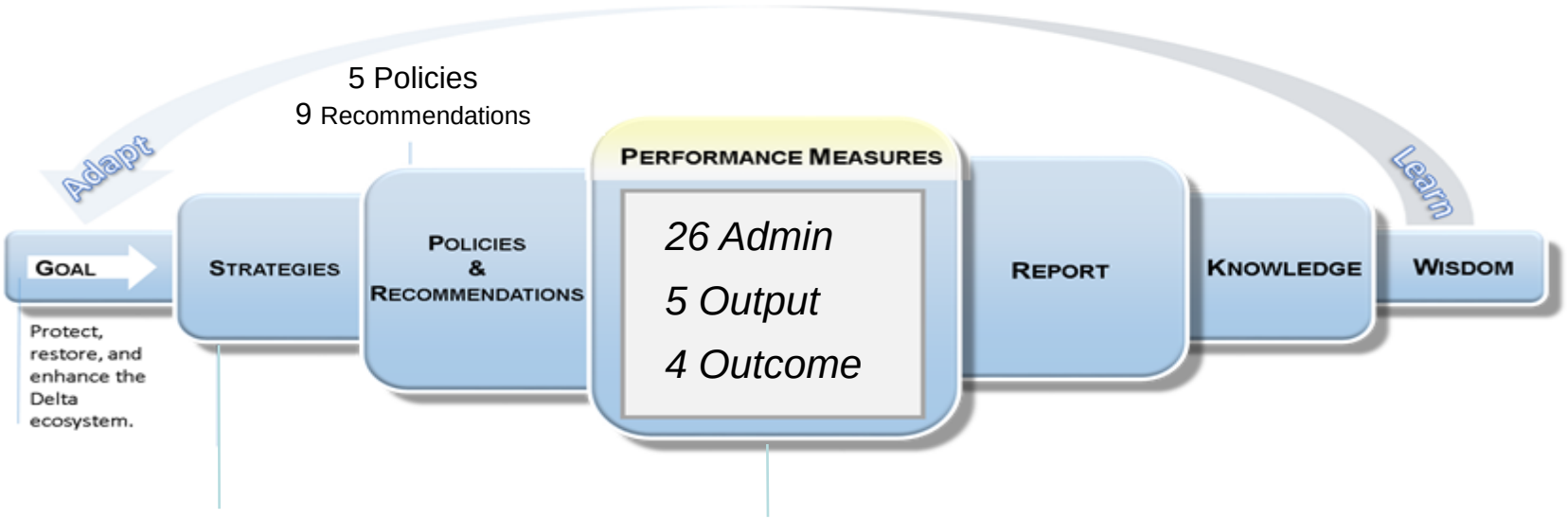
Purpose

Walk through the process using a specific example:

- **Restoring Functional Flows**

Delta Plan Chapter 4: Ecosystem Restoration

At-a-Glance



Strategies

▶Create more natural functional flows

2. Restore habitat
3. Improve water quality to protect the ecosystem
4. Prevent introduction of and managing nonnative species impacts
5. Improve hatcheries and harvest management

Output/Outcome Measures

- Number of acres of habitat restored
- Measured progress toward BiOps restoration targets
- Progress toward achieving "doubling goal" for wild CV salmonids

▶Progress toward restoring in-Delta flows

- Progress toward occurrence & use of protected & restored habitat by native species
- Implement DFW list of "Stage 2 Actions for Non-native Invasive Species"
- Progress towards decreasing trends in number, abundance, and distribution of existing nonnative species
- Adopt Delta flow objectives
- Adopt flow objectives for major tributaries by 2018

▶Restoring Functional Flows

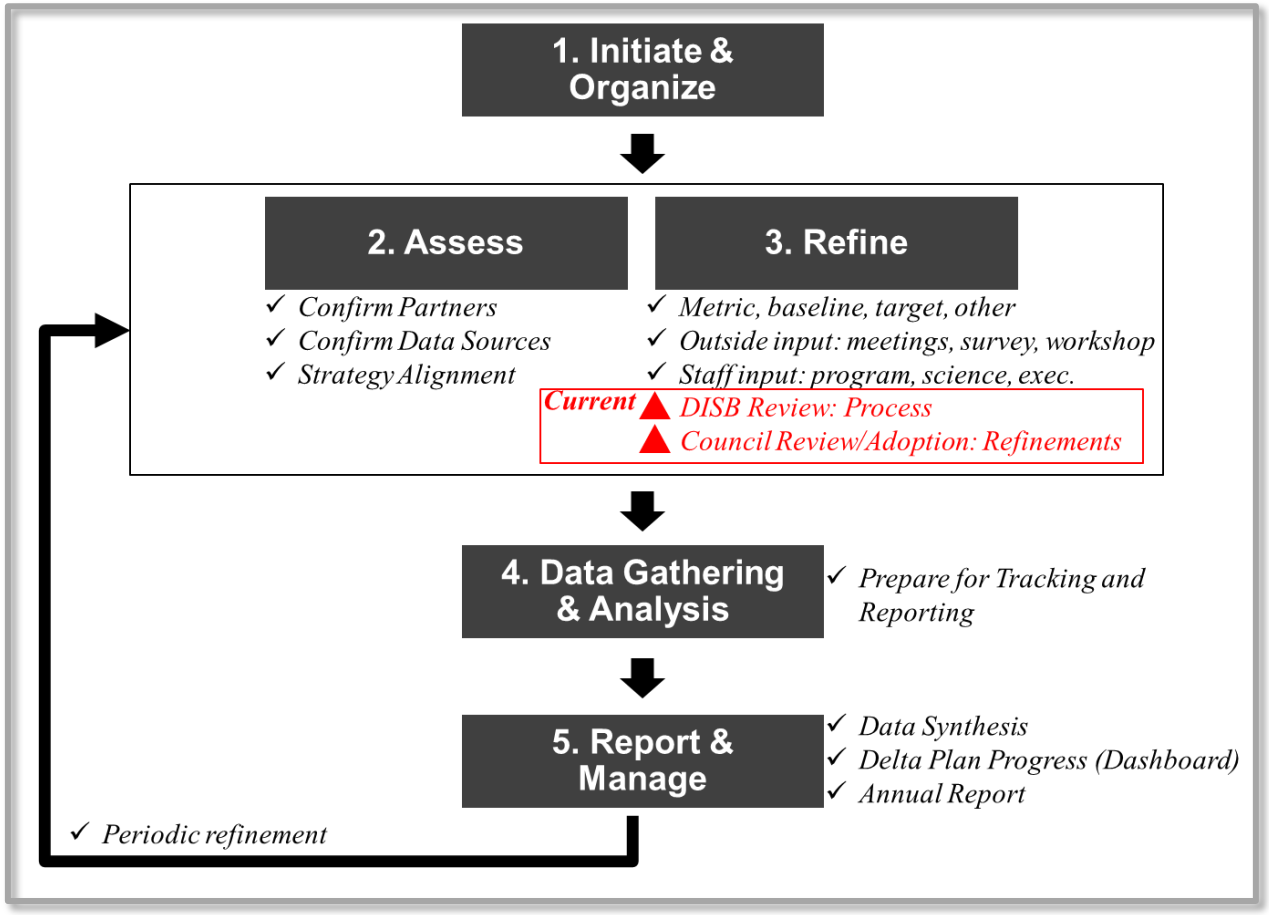
Process Overview

Restoring Functional Flows

Current Delta Plan:
(Broad Performance Statement)

"Progress toward restoring In-Delta flows to more natural functional flow patterns to support a healthy estuary.

Metrics: results from hydrological monitoring and hydrodynamic modeling."



Step 2: Assess

Restoring Functional Flows

- **Perform research: identify and confirm data sources/partners**

DELTA INTERAGENCY COLLABORATIVE EFFORTS RESEARCHED

(representative sample)

Collaborative Working Groups

- CA Water Quality Monitoring Council (CWQMC)
- CA Estuary Monitoring Workgroup (CEMW)
- CA Wetlands Monitoring Workgroup (CWMW)
- Data Management Group
- Healthy Streams Partnership
- San Francisco Estuary Partnership (SFEP)

Relevant Research (Flows)

- Est. ecologically based flow targets
- Natural Flow Regime ~ Restoring native fish assemblages.
- Natural Flow Regime ~ River Conservation and Restoration.
- Method for Assessing Hydrologic Alteration within Ecosystems.
- Functional Flows in Modified Riverscapes: Hydrographs, Habitats and Opportunities.

Planning and Data Resources

- CA EcoRestore
- CA WaterFix
- Water management plans (urban, agricultural)
- State of the Estuary Report (SotER)
- Bay Delta Water Quality Control Plan
- Delta Plan
- CA EcoAtlas
- Delta Landscapes Project
- Sac.-SJ Delta Historical Ecological Study
- CA Wetlands Portal (Wetland Tracker)
- Delta Regional Monitoring Program (Delta RMP)
- Delta Economic Sustainability Plan
- Comprehensive Conservation Mgt. Plan (CCMP)

Other Multi-Agency Plans and Programs

- Fish Restoration Program Agreement (FRPA)
- Ecosystem Restoration Program (ERP)
- Central Valley Flood Protection Plan (CVFPP)
- Delta Land Use and Resource Management Plan
- CVRWQCB Water Quality Control Plan
- Delta Science Plan
- Interagency Ecological Program (IEP)
- Environmental Monitoring Program (EMP)
- Delta Vision

Step 2: Assess

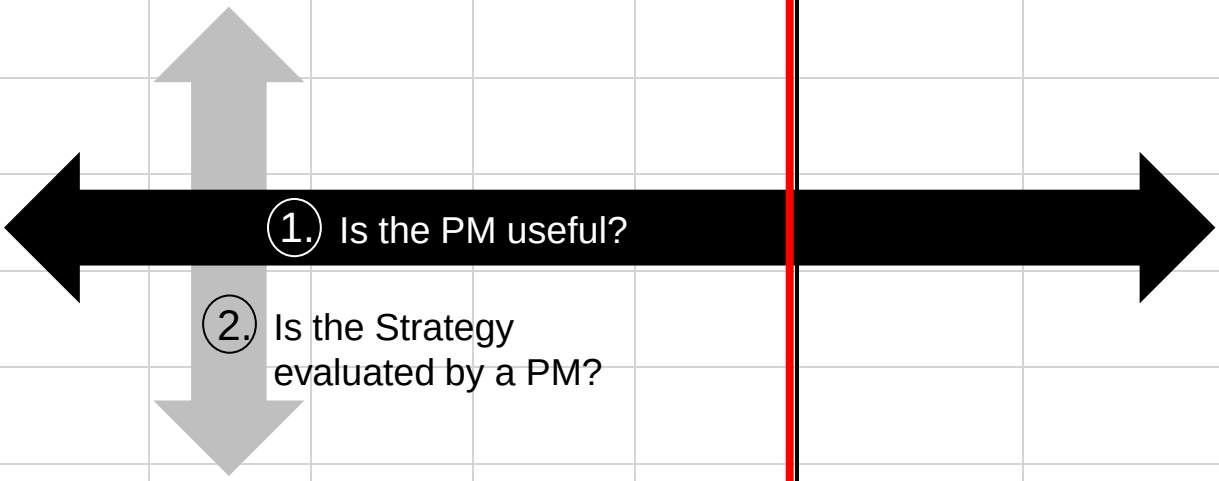
Restoring Functional Flows

- **How well do the performance measures align with the strategies and goals?**

Collaboration

Delta Plan Chapter X

Output/Outcome Performance Measure		(I) Strategy Alignment Rating					(II) Implementation Rating		Average
		Strategies, Policies & Recommendations (per Delta Plan)					Readiness	Feasibility	
		Stategy #1	Stategy #2	Stategy #3	Stategy #3	Stategy #5	H: Little refinement M: Some L: Significant	H: Good process alignment/ low complexity M: Moderate complexity L: High complexity	
		Policy 1 Recommendation 1 Recommendation 2	Policy 2 Recommendation 3 Recommendation 4	Recommendation 5 Recommendation 6	Recommendation 7 Recommendation 8	Recommendation 9 Recommendation 10 Recommendation 11			
output	**PM #1**								
output	**PM #2**								
outcome	**PM #3**								
outcome	**PM #4**								
outcome	**PM #5**								
outcome	**PM #6**								



3. Is the Goal adequately evaluated?

Step 2: Assess

Restoring Functional Flows

- **How well do the performance measures align with the strategies and goals?**

Delta Plan Chapter 4

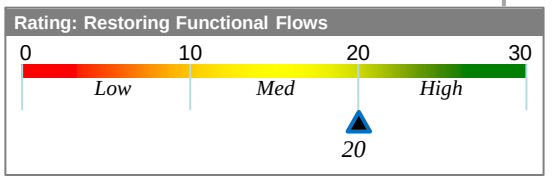
High (30 points), Medium (20), Low (10)

Collaboration

Output/Outcome Performance Measure		(I) Strategy Alignment Rating					(II) Implementation Rating		Average
		Strategies, Policies & Recommendations (per Delta Plan)					Readiness	Feasibility	
		Stategy #1	Stategy #2	Stategy #3	Stategy #3	Stategy #5	H: Little refinement M: Some L: Significant	H: Good process alignment/ low complexity M: Moderate complexity L: High complexity	
		Create more natural functional flows	Restore Habitat	Improve Water Quality	Prevent/ manage non-native	Hatcheries, Harvest mgmt.			
Outcome	Restoring functional flows	30	20	20	20	20	20	10	**20**

"Progress toward restoring In-Delta flows to more natural functional flow patterns to support a healthy estuary.

Metrics: results from hydrological monitoring and hydrodynamic modeling."



Step 2: Assess

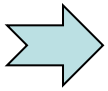
Restoring Functional Flows

- **How well do the performance measures align with the strategies and goals?**

Current Perf. Measure
(1 broad measure)

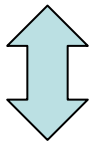
"Progress toward restoring In-Delta flows to more natural functional flow patterns to support a healthy estuary.

Metrics: results from hydrological monitoring and hydrodynamic modeling."



1. Research & Document

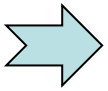
- ○ Reports
- ○ Science Program
- ○ Other Partners
- ○ Key PM components:
  - ✓ Metrics
  - ✓ Baseline
  - ✓ Target
  - ✓ Data Source



2. Assess

Strategy #1: "Create more natural functional flows"

- ○ Strategy
- ○ Feasibility
- ○ Readiness



3. Refine/Recommend
(3 sub-measures)

a. Yolo Bypass

b. Spring Pulse Flows

c. Recession Flows

Step 3: Refine

Sub-Measure: Spring Pulse Flows

- **Obtain input**

Proposed Amendment of Delta Plan Wording

PM #4.2 Progress toward restoring more natural functional flow patterns to support a healthy estuary, including flow patterns to support ecological floodplain processes in the (a) Yolo Bypass, **(b) spring pulse flows** along the Sacramento River, and (c) more gradual recession flows at the end of the wet season.

Metric:

- ✓ Frequency of achieving >17,000 acres of inundation for 14 or more consecutive days in the Yolo Bypass.
- ✓ **Flows exceeding base flows. A flow, e.g. 5 to 10 times greater than the base flow, during the period of spring flows.**
- ✓ Rate of change in the hydrograph on the receding limb as measured from spring high flows to summer low flows.

Baseline:

- ✓ Between 1984 and 2007 the Bypass flooded intermittently, only meeting 2009 National Marine Fisheries Service (NMFS) Biological Opinion requirements for 14 consecutive days of floodplain inundation between December and April once every 10 years.
- ✓ **Long-term historical hydrograph data retrieved from USGS stations from below Shasta.**

Target:

- ✓ Allow for >17,000 acres of Yolo Bypass inundation for 14 or more consecutive days between December and March in at least two out of three years.
- ✓ **At least one spring flow event 5 to 10 times winter base flow each year.**
- ✓ Not to exceed daily drops in flow >10%.

Step 3: Refine

Sub-Measure: Spring Pulse Flows

- ✓ **Obtain Delta Science Program and Lead Scientist input** (10/18/15 – 2/9/16)
- ✓ **Obtain outside feedback** (workshop 11/9/15, survey 10/28 - 11/19/15, public comment 12/17/15 – 1/22/16, Council meetings)
- ✓ **Obtain Delta Stewardship Council input** (12/17/15 – 2/25/16)
- ✓ **Obtain Delta Independent Science Board input** (12/10/15 - 2/17/16)
- ★ **You are here**
- ► **Obtain Delta Stewardship Council approval to proceed** (2/25/16)

Step 3: Refine

Engagement in refinement…

- **Online Survey**
  - 65 invitees (experts and stakeholders)
  - 34 provided input/rating (52%)
  - 35 additional reviewed only
  - Rating results: see next slide
- **Public Workshop**
  - 17 attended onsite
  - 17 additional remote (WebEx)
- **Internal Input**
  - 16 internal review meetings held (program, science, mgt. staff)
- **Council Meetings**
  - 2014: 2
  - 2015: 2
  - 2016: 2 to date
- **DISB Meetings**
  - 2015: 1
  - 2016: 2
- **Refinement recommendations**
  - 41 output/outcome measures in Delta Plan
  - 8 added
  - 4 reclassified to administrative measures
  - 8 removed
  - 37 currently proposed for Council adoption, with the inclusion of metrics, baselines, and targets for each.

Step 3: Refine

Sub-Measure: Spring Pulse Flows

- **Sections of the Performance Measures Specification Sheet**

(walk through specification document)

Steps Looking Ahead – After Council Approval

Sub-Measure: Spring Pulse Flows

- **Step 4:**
  - Collect Data
  - Synthesize/Analyze Information
- **Step 5:**
  - Implementation Reporting
  - Periodic Refinement

Discussion

Thank you!